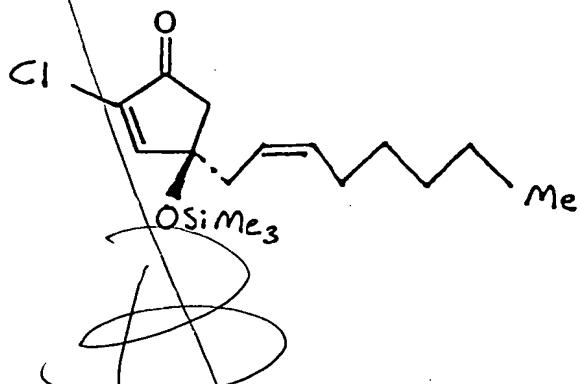


WHAT IS CLAIMED:

1. A method of treating or preventing virus replication and related disorders in an animal comprising administering to the animal in which such treatment or prevention is desired a therapeutically effective amount of a compound with a cyclopentenone ring structure wherein the compound is not PGD₂, PGA₂ 15-deoxy-13,14-dihydroprostaglandin J₂, Δ¹²-13, 14-dihydro-PGD₂ or the compound depicted below.

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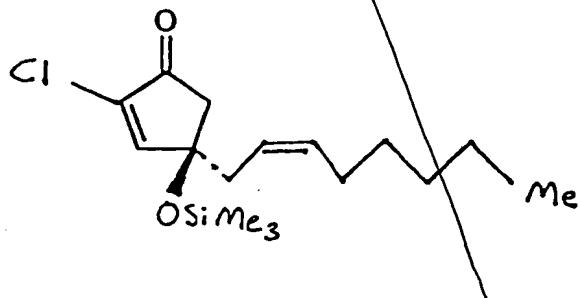
2. The method of Claim 1 wherein the virus is human immunodeficiency virus, influenza, herpesvirus, hepatitis B virus or hepatitis C virus.

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3. A method of treating or preventing inflammation and related disorders in an animal comprising administering to the animal in which such treatment or prevention is desired a therapeutically effective amount of a compound with a cyclopentenone ring structure, wherein the compound is not PGD₂, PGA₂ 15-deoxy-13,14-dihydroprostaglandin J₂, Δ¹²-13, 14-dihydro-PGD₂, or the compound depicted below.

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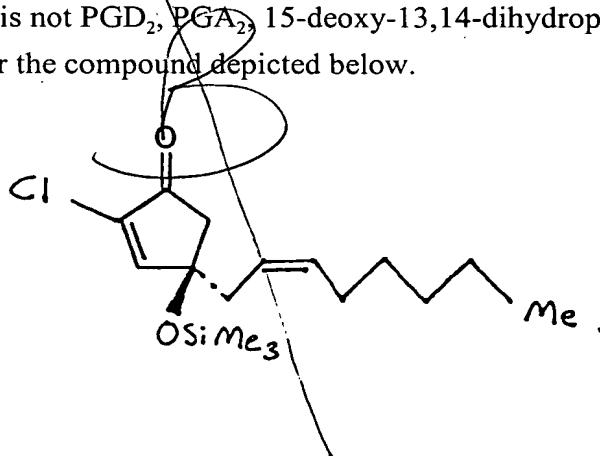
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4. A method of treating or preventing cancer and related disorders in an animal comprising administering to the animal in which such treatment or prevention is desired a therapeutically effective amount of a compound with a cyclopentenone ring structure, wherein the compound is not PGD₂, PGA₂, 15-deoxy-13,14-dihydroprostaglandin J₂, Δ¹²-13, 14-dihydro-PGD₂ or the compound depicted below.

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- 15 5. A method of inducing cytoprotective responses in a human, comprising administering to a human in which such treatment is desired a therapeutically effective amount of a compound with a cyclopentenone ring structure that induces the expression of one or more heat shock proteins.

- 20 6. A method of inhibiting NF-κB activation in a human, comprising administering to a human in which such treatment is desired a therapeutically effective amount of a compound with a cyclopentenone ring structure that downregulates or inhibits NF-κB activity.

- 25 7. A method of inducing both cytoprotective and NF-κB inhibitory activities in a human comprising administering to a human in which such treatment is desired a therapeutically effective amount of a compound with a cyclopentenone ring structure that induces the expression of one or more heat shock proteins and downregulates or inhibits NF-κB activity.

- 30 8. The method of Claim 1, 3, 4, 5, 6 or 7 wherein the compound is PGJ₂, 15-deoxy Δ^{12,12}-PGJ₂ or PGA₁.

9. The method of Claim 5, 6 or 7 wherein the compound is PGA₁, PGA₂, PGA₂, 35 16,16-dimethyl-PGA₂, PGD₂, 9-deoxy-Δ^{9,12}-13,14-dihydro-PGD₂ (Δ¹²-PGJ₂), PGJ₂, 15-deoxy Δ¹²⁻¹⁴-PGJ₂ or 2-cyclopenten-1-one.

10. A method of inducing both cytoprotective and NF- κ B inhibitory activities in a human comprising administering to a human in which such treatment or prevention is desired a therapeutically effective amount of a compound which is a serine protease inhibitor that induces the expression of one or more heat shock proteins and downregulates 5 or inhibits NF- κ B activation.

11. The method of Claim 10 wherein the serine protease inhibitor is 3,4-dichloro-iso-coumarine (DCIC), tosyl-L-phenylalanine-chloromethylketone (TPCK), N α -tosyl-lysine-chloromethylketone (TLCK), N-acetyl-DL-phenylalanine- β -naphylester 10 (APNE), N-benzoyl-L-thyroxine-ethylester (BTEE) or their derivatives.

12. The method of Claim 5, 7 or 10 wherein at least one of the heat shock proteins induced is HSP70.

13. The method of Claim 5, 6, 7 or 10 wherein the human has an infectious disease.

14. The method of Claim 5, 6, 7 or 10 wherein the human has an immune disorder.

20 15. The method of Claim 5, 6, 7 or 10 wherein the human has cancer.

16. The method of Claim 5, 6, 7 or 10 wherein the human has an inflammatory disorder.

25 17. The method of Claim 5, 6, 7 or 10 wherein the human has an HIV infection, an influenza virus infection, a herpesvirus infection, a hepatitis B virus infection or a hepatitis C virus infection.

30 18. A method of treating or preventing a viral infection in an animal in need thereof comprising:

- (a) identifying a compound that induces the expression of one or more heat shock proteins and downregulates or inhibits NF- κ B activation; and
- 35 (b) administering the compound to the animal.

19. A method of treating or preventing inflammation and related disorders in an animal in need thereof comprising:

- (a) identifying a compound that induces the expression of one or more heat shock proteins and downregulates or inhibits NF- κ B activation; and
 - (b) administering the compound to the animal.

20. A method of treating or preventing cancer and related disorders in an animal in need thereof comprising:

- 10 (a) identifying a compound that induces the expression of one or more heat shock proteins and downregulates or inhibits NF- κ B activation; and
(b) administering the compound to the animal.

15 21. The method of Claims 18, 19 or 20 wherein the animal is human.

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